

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A multi-vane centrifugal fan, comprising:
a fan housing having an air suction port and a bell mouth with a recessed part of a prescribed depth provided around a circumference of the air suction port; and
an impeller (3), ~~comprising~~ rotatably housed in the fan housing and including:
a hub (31) rotatably driven around a shaft core;
~~numerous~~ a plurality of vanes (33), (33), ... provided and fixed to the hub and
arranged with a prescribed spacing in ~~the~~ a circumferential direction of
~~said the~~ the hub (31), ~~and fixed to said hub (31);~~ and
an annular member (32) for reinforcement provided on ~~the~~ a side of said
~~numerous the~~ the vanes (33), (33), ... opposite ~~said the~~ the hub (31); and
~~a fan housing (4) wherein an air suction port (5) is formed, and that rotatably houses~~
~~said impeller (3) therein;~~
wherein,
a bell mouth (7) having a recessed part (7a) of a prescribed depth is provided in said
fan housing (4) around the circumference of said air suction port (5); and
the recessed part having air suction port side end parts (33d), (33d), ... positioned on
the side of ~~said numerous the~~ the vanes (33), (33), ... opposite ~~said the~~ the hub (31) ~~are and~~ rotatably
inserted ~~inside the recessed part (7a) of said bell mouth (7), therein~~ without having a shroud.
2. (Currently Amended) The multi-vane centrifugal fan as recited in Claim 1,
wherein
~~the vane width that is the length of said numerous~~ each of the vanes (33), (33), ... ~~has~~
a length in ~~the~~ a shaft core direction ~~is constituted so that an air outlet side (33b), and so that~~
~~it~~ with a width that decreases with a prescribed variation pattern from ~~the~~ an air inlet side
(33a) to ~~the~~ an air outlet side (33b).

3. (Currently Amended) The multi-vane centrifugal fan as recited in ~~Claim~~ 2, wherein

the prescribed variation pattern ~~wherein said vane width decreases is~~ includes a pattern that changes ~~the~~ a shape of ~~said the~~ air suction port side end part (33d) to a curved shape from the air inlet side (33a) to the air outlet side (33b).

4. (Currently Amended) The multi-vane centrifugal fan as recited in ~~Claim~~ 2, wherein

the prescribed variation pattern ~~wherein said vane width decreases is~~ includes a pattern that changes ~~the~~ a shape of ~~said the~~ air suction port side end part (33d) to an arcuate shape having a prescribed curvature from the air inlet side (33a) to the air outlet side (33b).

5. (Currently Amended) The multi-vane centrifugal fan as recited in ~~Claim~~ 2, wherein

the prescribed variation pattern ~~wherein said vane width decreases is~~ includes a linear variation pattern ~~wherein the~~ in which a shape of ~~said the~~ air suction port side end part (33d) linearly changes from the air inlet side (33a) to the air outlet side (33b).

6. (Currently Amended) ~~A~~ The multi-vane centrifugal fan as recited in ~~Claim~~ 2, ~~Claim 3, Claim 4, or Claim 5,~~ wherein

~~said the~~ annular member (32) is ~~provided positioned at the portion that is on said~~ disposed at the air outlet (33b) side of ~~said numerous the~~ vanes (33), (33), ..., ~~where the vane width that is the length of said proximate the numerous vanes (33), (33), ... in the shaft core direction becomes smallest, and that is on said proximate the~~ air suction port (5) side.

7. (Currently Amended) A multi-vane centrifugal fan, comprising:
a fan housing having an air suction port and a bell mouth with a recessed part of a prescribed depth provided around a circumference of the air suction port; and

an impeller (3), ~~comprising rotatably housed in the fan housing and including:~~

a hub (31) rotatably driven around a shaft core;

~~numerous a plurality of vanes (33), (33), ... provided and fixed to the hub and~~
arranged with a prescribed spacing in ~~the~~ a circumferential direction of
~~said the hub (31), and fixed to said hub (31), the prescribed spacing~~
being fully open in a shaft core direction and in a direction of a side of
the vanes opposite the hub; and

an annular member (32) for reinforcement disposed on ~~the~~ an outer side in ~~the~~
a radial direction of said numerous the vanes (33), (33), ..., and
integrated with ~~the~~ a plurality of end parts on the side of ~~said numerous~~
the vanes (33), (33), ... opposite said the hub (31); and,

a fan housing (4) wherein an air suction port (5) is formed, and that rotatably houses
said impeller (3) therein;

wherein,

~~the spaces interposed between adjacent vanes (33), (33) of said impeller (3) are fully~~
~~open in the shaft core direction and in the direction of the side opposite said hub (31);~~
a bell mouth (7) having a recessed part (7a) of a prescribed depth is provided in said
fan housing (4) around the circumference of said air suction port (5); and

the recessed part having air suction port side end parts (33d), (33d), ... positioned on
the side of ~~said numerous the vanes (33), (33), ... opposite said the hub (31) are and inserted~~
therein inside the recessed part (7a) of said bell mouth (7).

8. (New) The multi-vane centrifugal fan as recited in claim 3, wherein
the annular member is disposed at the air outlet side of the vanes proximate
the air suction port.

9. (New) The multi-vane centrifugal fan as recited in claim 4, wherein
the annular member is disposed at the air outlet side of the vanes proximate
the air suction port.

10. (New) The multi-vane centrifugal fan as recited in claim 5, wherein
the annular member is disposed at the air outlet side of the vanes proximate
the air suction port.